



COLDSTORE Network Protocol

Version 3.0.14



COLDSTORE Network Protocol

Document Revision History

| Version | Date | Changes |
|---------|-----------------|---|
| 3.0.8 | 15 July 2010 | New command added (CMD_FILE_QUERY). |
| 3.0.9 | 30 March 2011 | Added info on FILE_CLOSED return value from CMD_WRITE |
| 3.0.10 | 19 May 2011 | Fixed errors in CMD_FILE_QUERY documentation |
| 3.0.11 | 18 August 2011 | Added commands for directory support. |
| 3.0.12 | 7 October 2011 | Added CMD_GETATTR Fix errors in the directory command documentation. |
| | 26 April 2012 | CMD_FILEQUERY can now accept a disk_slot. CMD_OPEN can now accept a disk_slot. Added CMD_DRIVE_ON, CMD_DISKSTEP |
| | 16 May 2012 | CMD_CREATE, CMD_CREATE_PATH and CMD_WRITE now all allow the client to supply the timestamp. |
| 3.0.13 | 3 August 2012 | Added CMD_GET_TIMESPANS |
| 3.0.14 | 10 October 2012 | Added CMD_DISKINFO, CMD_GET_HYBRID_CONFIG, CMD_SET_HYBRID_CONFIG, CMD_RENAME_PATH, CMD_CREATE_EX, CMD_REMOVE_DRIVE, CMD_INSERT_DRIVE, CMD_ARRAY_STATUS, CMD_BAY_STATUS, CMD_ERASE_DRIVE, CMD_QUERY_SELECT, CMD_QUERY_FINALIZE, CMD_QUERY_PREPARE_GENERAL, CMD_QUERY_PREPARE_DISK_SLOT, CMD_RETENTION_STATE, CMD_GET_CONFIG, CMD_SET_CONFIG, CMD_GET_ACTIVE, CMD_UPDATE_CONFIG, CMD_READ_ONLY, CMD_WRITEABLE, CMD_SHORT_TEST_SMARTMONTTOOLS_DATA, CMD_FULL_TEST_SMARTMONTTOOLS_DATA, Added status DISK_FULL. |



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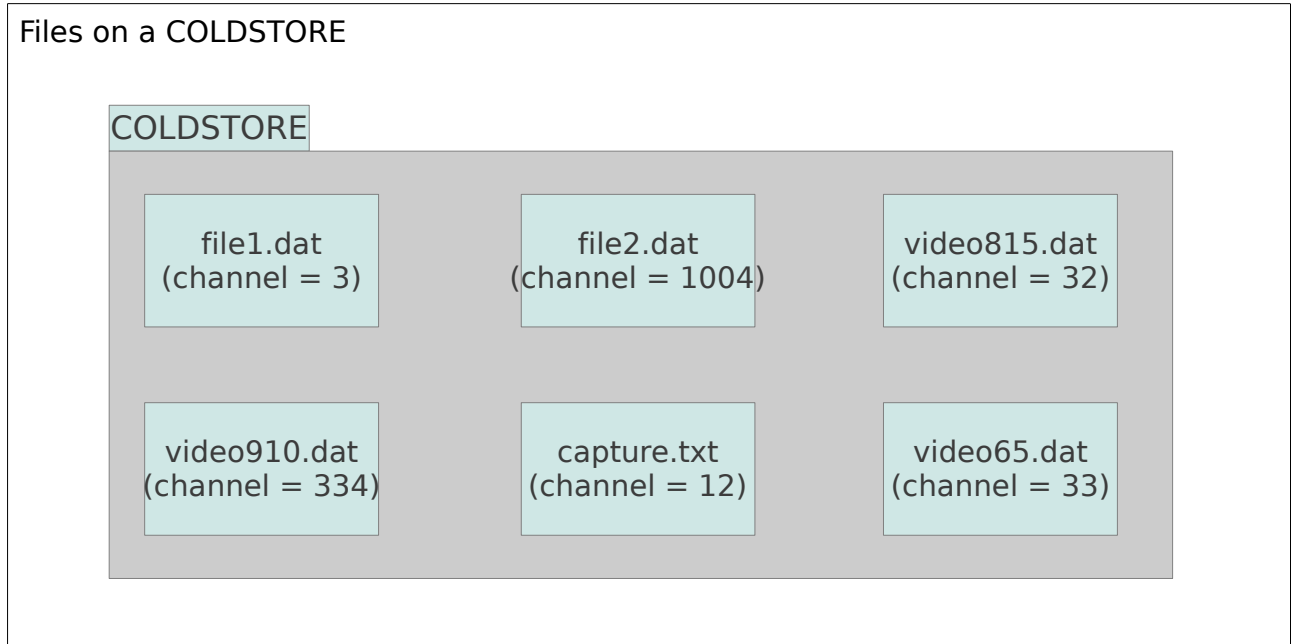
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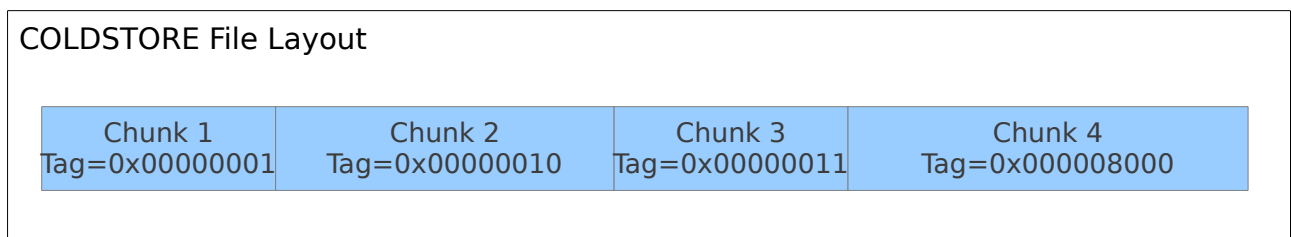
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1 COLDSTORE Data Storage Overview

Data is stored on COLDSTORE in files. Each file has a name and a channel number. There is no hierarchical directory structure. Files are simply identified by their name and channel as shown below.



The data within each file is arranged into a sequence of variable sized chunks. Each chunk has a timestamp and a tag. The timestamp is taken at the time of writing (see section 3.2.2). The tag is a 32 bit value used to identify the type of data that the chunk contains. COLDSTORE attaches no meaning to any of the tag bits - it is entirely up to the client application to do this.

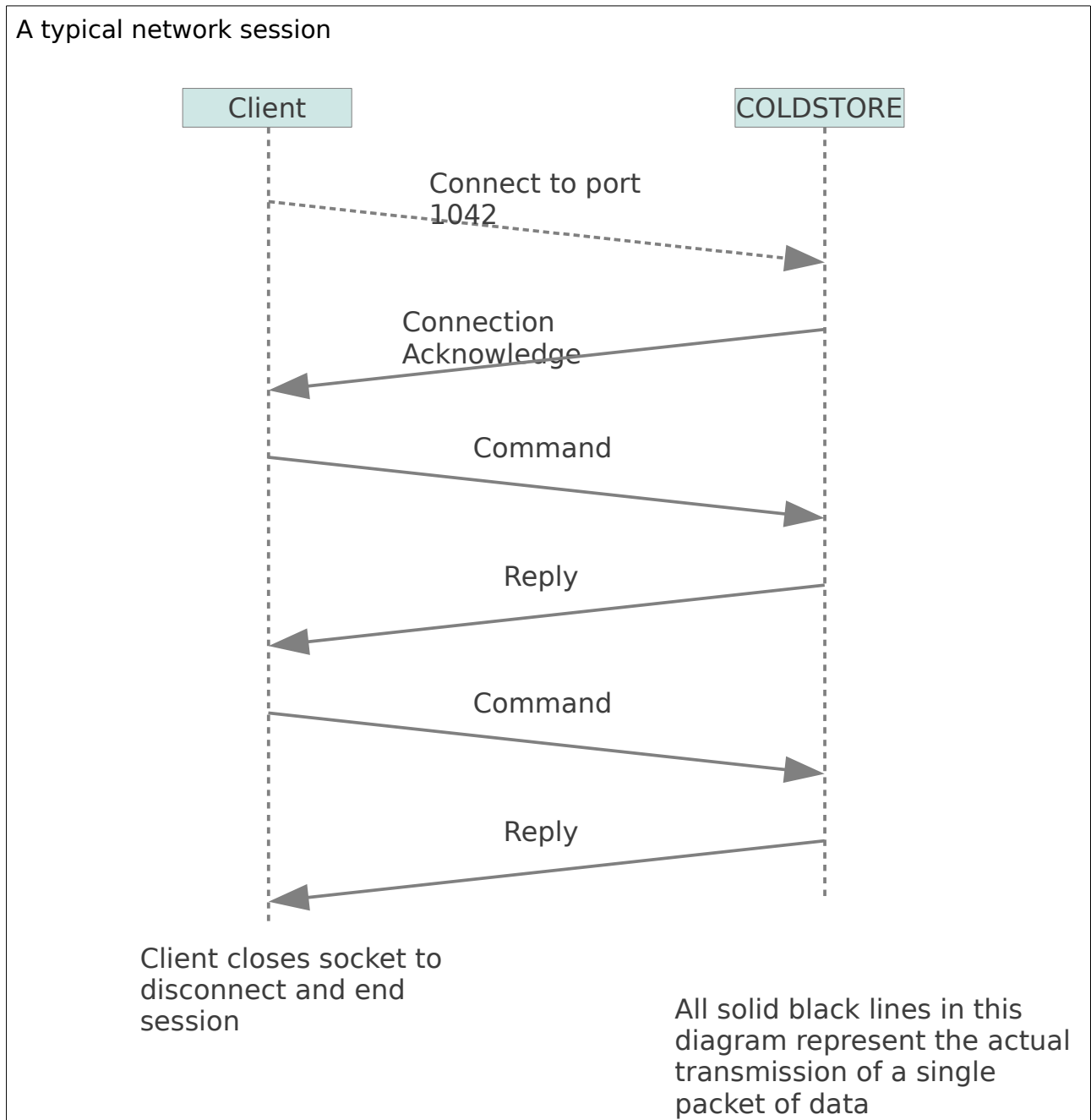




COLDSTORE Network Protocol

2 COLDSTORE Network Protocol Overview

This document describes the network protocol used to communicate with COLDSTORE. All communications use the client-server model with COLDSTORE being the server. All communications are done using TCP on port 1042. Once a connection is established, communication normally takes the form of a command sent to COLDSTORE followed by a reply sent from COLDSTORE. This is illustrated below.





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3 Network Packet Layout

All network traffic takes the form of packets. The packet structure is the same for all traffic, whether it is a Connection Acknowledge, a Command or a Reply. Each packet is comprised of a header followed by optional parameters followed by an optional payload.

| Section | Description |
|-------------------|---|
| packet.header | Fixed size header |
| packet.parameters | Optional section containing parameters |
| packet.payload | The packet payload (this is not always present) |

3.1 packet.header

In packet.header all values requiring more than one byte of storage use big endian format.

| Offset | Size | Name | Description |
|--------|------|------------------------|---|
| 0 | u8 | version | Protocol version (currently 3) |
| 1 | u8 | header_size | The size of this header (currently 16) |
| 2 | u8 | command | Command number (see section 3.1.1) |
| 3 | u8 | parameter_count | The count of parameters following this header |
| 4 | u16 | payload_offset | Total size of packet.header and packet.parameters |
| 6 | u16 | spare | Currently unused |
| 8 | u64 | payload_length | Payload length |



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3.1.1 List of commands

| Number | Name | Description |
|--------|--|---|
| 0x09 | CMD_CONNECT | Sent by COLDSTORE to indicate Connection Acknowledge |
| 0x01 | CMD_OPEN | Open an existing file for reading. |
| 0x03 | CMD_CREATE | Create a new file. |
| 0x07 | CMD_CLOSE | Close a file. |
| 0x04 | CMD_WRITE | Write a data chunk to a file. |
| 0x05 | CMD_READ | Read data from a file. |
| 0x06 | CMD_SEEK | Seek to a position in a file which is opened for reading (with optional read before or after seek). |
| 0x08 | CMD_ECHO | Return the packet unchanged. |
| 0x19 | CMD_TELL | Return the current file position. |
| 0x1a | CMD_ERASEALL | Erase all disks. |
| 0x1b | CMD_BULK_READ | Specify a time range then read the data. |
| 0x1d | CMD_FILE_QUERY | Return information about the files present. |
| 0x1f | CMD_CREATE_EX | Create a new file and report which disk slot(s) the file was created on. |
| 0x20 | CMD_GET_TIMESPANS | Retrieve the set of timespans for which files exist. |
| 0x21 | CMD_RETENTION_STATE | Retrieve the retention state. |
| 0x22 | CMD_GET_CONFIG | Read configuration items. |
| 0x23 | CMD_SET_CONFIG | Write configuration items. |
| 0x24 | CMD_GET_ACTIVE | Read currently active configuration items. |
| 0x25 | CMD_UPDATE_CONFIG | Activate configuration items. |
| 0x27 | CMD_DISK_READ_ONLY | Set a disk from writeable to read only |
| 0x28 | CMD_DISK_WRITEABLE | Set a disk from read only to writeable |
| 0x29 | CMD_SHORT_TEST_SMARTMONTOLS_DATA | Retrieve the short smartmontools selftest results of a disk |
| 0x2A | CMD_FULL_TEST_SMARTMONTOLS_DATA | Retrieve the full smartmontools results of a disk |
| 0x40 | CMD_GET_HYBRID_CONFIG | Retrieve the currently configured hybrid |



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| | | configuration settings. |
| 0x41 | CMD_SET_HYBRID_CONFIG | Configured the hybrid configuration settings. |
| 0x50 | CMD_GETATTR_PATH | Get directory/file attributes, based on a path. |
| 0x51 | CMD_READDIR_PATH | Read directory contents, based on a path. |
| 0x52 | CMD_MKDIR_PATH | Create a directory, based on a path. |
| 0x53 | CMD_RMDIR_PATH | Delete a directory, based on a path. |
| 0x54 | CMD_UNLINK_PATH | Delete a file, based on a path. |
| 0x55 | CMD_CREATE_PATH | Create a file, based on a path. |
| 0x56 | CMD_OPEN_PATH | Open a file, based on a path. |
| 0x57 | CMD_RENAME_PATH | Rename a file or directory, based on a path. |
| 0x60 | CMD_GETATTR | Get the attributes of a file, based on channel and file-name. |
| 0x61 | CMD_DISKSTEP | Force the Coldstore to perform a disk-step. |
| 0x62 | CMD_DISKINFO | Return disk drive information from a disk slot. |
| 0x63 | CMD_REMOVE_DRIVE | Remove a drive from the array. |
| 0x64 | CMD_INSERT_DRIVE | Insert a drive into the array. |
| 0x65 | CMD_DRIVE_ON | Power up one or more drives in the array. |
| 0x66 | CMD_ARRAY_STATUS | Return the array status.(Deprecated) |
| 0x67 | CMD_BAY_STATUS | Return the status of a bay. |
| 0x68 | CMD_ERASE_DRIVE | Erase a specific drive. |
| 0x69 | CMD_ARRAY_STATUS_V2 | Return the array status. |
| 0x6a | CMD_QUERY_SELECT | Retrieve the data from a previously prepared query. |
| 0x6b | CMD_QUERY_FINALIZE | Finalize a query. |
| 0x6c | CMD_QUERY_PREPARE_GENERAL | Prepare a general file query. |
| 0x6d | CMD_QUERY_PREPARE_DISK_SLOT | Prepare a slot specific query. |



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3.2 packet.parameters

In **packet.parameters** all values requiring more than one byte of storage use big endian format. **packet.parameters** may be omitted - in this case **packet.header.parameter_count** = 0. If **packet.parameters** is present then it takes the following form.

| Section | Description |
|--------------------------------------|--|
| packet.parameters.index | One byte per parameter that follows. Each byte identifies the parameter type (which implicitly determines its size). See the table below for a list of valid parameter types. The size of this section is always a multiple of 8. It is padded with zeros at the end if necessary. |
| packet.parameters.parameter_1 | The first parameter |
| packet.parameters.parameter_2 | The second parameter |
| | |
| packet.parameters.parameter_n | The nth parameter, where n = packet.header.parameter_count |
| packet.parameters.padding | Enough zeros to ensure that the size of packet.parameters is a multiple of 8. |

The parameters should be present in descending order of size. The size of the entire **packet.parameters** section is always a multiple of 8. It is padded with zeros at the end if necessary.



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3.2.1 List of parameters

| ID | Size | Name | Description |
|------|----------|-----------------|--|
| 0x00 | N/A | Null parameter | Used to indicate that there are no more parameters present. |
| 0x01 | u32 | channel | Channel number. |
| 0x02 | 64 bytes | file_name | Null terminated string (file name only, no path). |
| 0x03 | u64 | file_size | The size of a file (bytes). |
| 0x04 | u64 | file_position | The current position in a file (bytes from the beginning). |
| 0x05 | s64 | file_offset | An offset from a specific point in a file (bytes). |
| 0x06 | 8 bytes | time_start | Timestamp indicating start time (see section 3.2.2). |
| 0x07 | 8 bytes | time_end | Timestamp indicating end time (see section 3.2.2). |
| 0x08 | 8 bytes | time_current | Timestamp indicating current time (see section 3.2.2). |
| 0x09 | u32 | data_tag | Tag bits associated with a chunk of data. |
| 0x0a | u64 | data_length | Length of a section of data (bytes). |
| 0x0b | u8 | seek_whence | 0 - SEEK_SET, 1 - SEEK_CUR, 2 - SEEK_END. |
| 0x0c | u8 | seek_direction | 0 - backwards, 1 - forwards. |
| 0x0d | u32 | stream_no | Stream Number. This is the file descriptor which is used to identify a particular file. It is generated by COLDSTORE and returned to the client in response to a CMD_OPEN or CMD_CREATE command. |
| 0x0e | u32 | status | Command status. This is used by COLDSTORE to return status information when it replies to a command (see section 3.2.3). |
| 0x0f | u32 | client_id | Client ID. This is used by COLDSTORE to identify the client connection. It is returned to the client in the Connection Acknowledge packet. A client application may actually have more than one client ID - it will in fact have one for each connection in existence. |
| 0x10 | u64 | file_count | Number of files. |
| 0x11 | u64 | disk_size | Disk size (bytes). |
| 0x12 | u64 | buffer_size | The size of a memory buffer (bytes). |
| 0x13 | u64 | bytes_remaining | Number of bytes remaining (depends on context). |



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| 0x14 | u32 | path_type | 0 - UNKNOWN, 1 - FILE, 2 - DIRECTORY. Type of path, returned by CMD_GETATTR. |
| 0x15 | u32 | disk_slot | A disk slot (zero based). |
| 0x16 | u64 | disk_used | Amount of bytes in use on a disk drive. |
| 0x20 | u32 | string_start | Start position within a string (1 is the first character). |
| 0x21 | u32 | string_length | Length of a string. |
| 0x22 | u32 | file_query_flags | See section 4.12.1 |



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3.2.2 Timestamp data type

| Size | Description |
|---------|--|
| 8 bytes | Upper 12 bits form a signed number which is tz_offset . This is the difference (in minutes) between local time and UTC. e.g. local time is 14:45, UTC is 13:45 means that tz_offset = 60. Lower 52 bits form an unsigned number which is ms . This is UTC expressed as the number of milliseconds since 00:00:00 on 1 st January 1970. |

3.2.3 Status parameter

| Value | Name | Description |
|-------|---------------------|--|
| 0x00 | SUCCESS | Operation was successful. |
| 0x01 | FAIL | Non-specific failure. |
| 0x02 | DISK_POWERING_UP | Open file failed because it is on a disk which is not powered up. |
| 0x03 | NO_SPARE_STREAMS | Open or create file failed because there are too many streams open. |
| 0x04 | FILE_NOT_FOUND | Open file failed because file does not exist. |
| 0x05 | NETWORK_ERROR | A network error occurred. |
| 0x06 | BUFFER_TOO_SMALL | The buffer was too small for the operation. |
| 0x07 | INVALID_STREAM | The stream number is invalid. |
| 0x08 | FILE_CLOSED | The file has been closed closed. |
| 0x09 | NOT_A_DIRECTORY | Could not remove the directory because the path is not a directory. |
| 0x0a | DIRECTORY_NOT_EMPTY | Failed to remove a directory because the directory was not empty. |
| 0x0b | FILE_EXISTS | Could not create a directory because the file/directory name already exists. |
| 0x0c | DISK_FULL | The disk is full. |

3.3 packet.payload

packet.payload may be omitted - in this case packet.header.payload_length = 0. If packet.payload is present then it contains the actual data being transferred.



COLDSTORE Network Protocol

4 Detailed Command Descriptions

In the command descriptions that follow, parameters which are followed by **(o)** are optional. The remaining parameters are mandatory.

4.1 Connection Acknowledge

After establishing a TCP connection to port 1042, the client should wait to receive a packet from the COLDSTORE. No packets should be transmitted to the COLDSTORE until this Connection Acknowledge packet is received. The received packet will be a header only packet.

| Connection Acknowledge (COLDSTORE to client) | | |
|--|--|---------------------------|
| Description | Sent from COLDSTORE to client immediately after connection is established. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x09 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | client_id | ID generated by COLDSTORE |
| payload | none | |



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4.2 CMD_OPEN

4.2.1 CMD_OPEN Command (client to COLDSTORE)

| | | |
|--------------------|--|---|
| Description | Open an existing file for reading. One and only one of the parameters file_name and time_current should be present. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x01 |
| | parameter_count | 0x02 |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_name (o) | If this parameter is present then COLDSTORE will attempt to open the file with the specified name. If this parameter is not present then time_current must be present. |
| | time_current (o) | If file_name is not present then COLDSTORE will attempt to open the file which covers the specified time. If this parameter is not present then file_name must be present. |
| | channel | This is the channel number specified when the file was created. |
| | disk_slot(o) | If this parameter is present then the COLDSTORE will attempt to open the file on the specified disk slot (zero based). |
| payload | none | |



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4.2.2 CMD_OPEN Reply (COLDSTORE to client)

| | | |
|-------------------|--------------------------|---|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x01 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_name (o) | The name of the opened file - useful when it was opened by specifying a time. Only present if the open succeeded. |
| | file_size (o) | The size of the opened file. Only present if the open succeeded. |
| | file_position (o) | The current byte position in the file. Only present if the open succeeded. |
| | time_current (o) | The current time position in the file. Only present if the open succeeded. |
| | stream_no | 0xffffffff if fail, otherwise the stream_no for this file. This stream_no cannot be used in a CMD_WRITE command. |
| | status | See section 3.2.3 |
| payload | none | |



COLDSTORE Network Protocol

4.3 CMD_READ

4.3.1 CMD_READ Command (client to COLDSTORE)

| | | |
|--------------------|------------------------|--|
| Description | Read data from a file. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x05 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | data_length (o) | Number of bytes to read. If this parameter is zero or is omitted then COLDSTORE will read up to the end of the current data chunk or the number of bytes specified by buffer_size , whichever is smaller. |
| | buffer_size (o) | Maximum number of bytes to read. This parameter is ignored if data_length is present and non-zero. If this parameter is omitted when data_length is zero or omitted then the entire chunk remainder will be read, regardless of its size. |
| | stream_no | stream_no returned from CMD_OPEN |
| payload | none | |



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4.3.2 CMD_READ Reply (COLDSTORE to client)

| | | |
|-------------------|----------------------------|---|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x05 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | The number of bytes read |
| parameters | bytes_remaining (o) | This is only present if data_length was zero or omitted in the outgoing command, i.e. if the command was to read to the end of the current data chunk. This indicates the number of bytes left in the chunk that were not read. |
| | status | See section 3.2.3 |
| payload | file_data | The actual data read from the file |



COLDSTORE Network Protocol

4.4 CMD_CREATE

4.4.1 CMD_CREATE Command (client to COLDSTORE)

| | | |
|--------------------|-----------------------------------|---|
| Description | Create a new file for writing to. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x03 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_name | The name of the file. |
| | channel | The channel number to associate with this file, e.g. camera number. |
| | time_current (o) | The file creation time generated by the client. |
| payload | none | |



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4.4.2 CMD_CREATE Reply (COLDSTORE to client)

| | | |
|-------------------|-------------------------|--|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x03 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | time_current (o) | The file creation time generated by COLDSTORE or as issued by client. Only present if the create succeeded. |
| | stream_no | 0xffffffff if fail, otherwise the stream_no for this file. This stream_no cannot be used in the CMD_READ, CMD_SEEK or CMD_TELL commands. |
| | status | See section 3.2.3 |
| payload | none | |



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4.5 CMD_WRITE

4.5.1 CMD_WRITE Command (client to COLDSTORE)

| | | |
|--------------------|----------------------------------|--|
| Description | Write a chunk of data to a file. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x04 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | number of bytes to write |
| parameters | stream_no | stream_no returned from CMD_CREATE |
| | data_tag | Custom value to tag data chunk with |
| | time_current (o) | The data chunk write time generated by the client. |
| payload | file_data | the actual data to write to the file |



COLDSTORE Network Protocol

4.5.2 CMD_WRITE Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---|---|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x04 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | time_current | The data chunk timestamp generated by COLDSTORE or as issued by the client. | |
| | data_length | The number of bytes actually written | |
| | status | See section 3.2.3 | |
| | | FILE_CLOSED | Note that if the returned status is FILE_CLOSED this means that the data sent by this CMD_WRITE command has been accepted but no more data can be written to the file after this. This happens when COLDSTORE reaches the end of a disk. The client must explicitly close the file in response to receiving a FILE_CLOSED status. |
| | DISK_FULL | If automatic disk-step is disabled then the write command may return DISK_FULL to signify a full writing disk, the data is NOT written and the client must explicitly close the file. | |
| payload | none | | |



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4.6 CMD_CLOSE

4.6.1 CMD_CLOSE Command (client to COLDSTORE)

| | | |
|--------------------|--|---|
| Description | Close a file that has previously been opened for reading or writing. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x07 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | stream_no | stream_no returned from CMD_CREATE or CMD_OPEN |
| payload | none | |



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4.6.2 CMD_CLOSE Reply (COLDSTORE to client)

| | | |
|-------------------|------------------------|--------------------|
| header | <i>version</i> | 0x03 |
| | <i>header_size</i> | 0x10 |
| | <i>command</i> | 0x07 |
| | <i>parameter_count</i> | 0x01 |
| | <i>payload_offset</i> | 0x0020 |
| | <i>spare</i> | 0x0000 |
| | <i>payload_length</i> | 0x0000000000000000 |
| parameters | <i>status</i> | See section 3.2.3 |
| payload | none | |



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4.7 CMD_SEEK

4.7.1 CMD_SEEK Command (client to COLDSTORE)

| | | |
|--------------------|---|--|
| Description | Seek to a position within a file. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x06 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_offset (o) | Offset from starting position (bytes) |
| | time_start (o) | Time to seek to (only UTC part is used) |
| | data_length (o) | Number of bytes to read |
| | buffer_size (o) | Maximum number of bytes to read. This parameter is ignored unless data_length is present and zero. If this parameter is omitted when data_length is present and zero then all data up to the seek position is read. |
| | data_tag (o) | Specifies which type of data to search for |
| | stream_no | stream_no returned from CMD_OPEN |
| | seek_direction (o) | Direction of seek |
| | seek_whence (o) | Starting position within the file for the seek |
| | <p>This command involves a number of steps, any of which may be omitted:</p> <ol style="list-style-type: none"> 1. Seek to a position within the file. This step is carried out if (seek_whence and file_offset) or time_start is present. If this step is not carried out then the file position is left unchanged. 2. Search from that position for a specified type of data in a specified direction. This step is carried out if data_tag and seek_direction are present. COLDSTORE will attempt to find the first data chunk (in the specified direction) such that (data_tag & chunk_tag) != 0, where chunk_tag is the tag value of the chunk on disk. If data_tag is 0 then COLDSTORE will find the start of the next chunk, regardless of its tag value. 3. Read a specified number of bytes. This step is carried out if | |



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| | | |
|----------------|---|--|
| | <p><i>data_length</i> is present and is non-zero. If <i>data_length</i> is present and equal to zero then the read is done before the seek, i.e. COLDSTORE will read from the current position to the position found by the seek and the search (steps 1 and 2). Only valid for forward seeks.</p> | |
| payload | none | |

4.7.2 CMD_SEEK Reply (COLDSTORE to client)

| | | |
|-------------------|-----------------------------------|---|
| header | <i>version</i> | 0x03 |
| | <i>header_size</i> | 0x10 |
| | <i>command</i> | 0x06 |
| | <i>parameter_count</i> | Variable |
| | <i>payload_offset</i> | Variable |
| | <i>spare</i> | 0x0000 |
| | <i>payload_length</i> | The number of bytes read |
| parameters | <i>file_position</i> | The current file byte position (after all operations are complete). |
| | <i>time_current</i> | The current file time position (after all operations are complete). |
| | <i>bytes_remaining (o)</i> | This is only present if <i>data_length</i> was present and zero in the outgoing command. This indicates the number of bytes left that were not read. |
| | <i>status</i> | See section 3.2.3 |
| | <i>data_tag</i> | The tag of the current chunk. |
| payload | <i>file_data</i> | The actual data read from the file (if requested) |



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4.8 CMD_BULK_READ

4.8.1 CMD_BULK_READ Command (client to COLDSTORE)

| | | |
|--------------------|---|--|
| Description | Read data from a file by specifying a time range. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x1b |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | time_start | Time to start reading data from |
| | time_end | Time to end reading data at |
| | buffer_size (o) | Maximum number of bytes to read. If this parameter is omitted then all data up to time_end is read. |
| | stream_no | stream_no returned from CMD_OPEN |
| payload | none | |



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4.8.2 CMD_BULK_READ Reply (COLDSTORE to client)

| | | |
|-------------------|----------------------------|---|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x1b |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | The number of bytes read |
| parameters | file_position | The current file byte position (after the read is complete). |
| | time_current | The current file time position (after the read is complete). |
| | bytes_remaining (o) | This is only present if buffer_size was present in the outgoing command. This indicates the number of bytes left that were not read. |
| | status | See section 3.2.3 |
| payload | file_data | the actual data read from the file |



COLDSTORE Network Protocol

4.9 CMD_TELL

4.9.1 CMD_TELL Command (client to COLDSTORE)

| | | |
|--------------------|------------------------------------|---|
| Description | Request the current file position. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x19 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | stream_no | stream_no returned from CMD_OPEN or CMD_CREATE |
| payload | none | |



COLDSTORE Network Protocol

4.9.2 CMD_TELL Reply (COLDSTORE to client)

| | | |
|-------------------|------------------------|--|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x19 |
| | parameter_count | 6 |
| | payload_offset | 0x0048 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_position | The current byte position in the file. |
| | time_current | The current time position in the file. |
| | time_start | The time of the first chunk of the file. |
| | time_end | The time of the last chunk of the file (0 if file is still being written). |
| | file_size | The size of the file. |
| | status | See section 3.2.3 |
| payload | none | |



COLDSTORE Network Protocol

4.10 CMD_ECHO

4.10.1 CMD_ECHO Command (client to COLDSTORE)

| | | |
|--------------------|--|--------------------|
| Description | Send a packet which will be sent back unchanged. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x08 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | none | |
| payload | none | |



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4.10.2 CMD_ECHO Reply (COLDSTORE to client)

| | | |
|-------------------|------------------------|----------------------|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x08 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x000000000000000000 |
| parameters | none | |
| payload | none | |



COLDSTORE Network Protocol

4.11 CMD_ERASEALL

4.11.1 CMD_ERASEALL Command (client to COLDSTORE)

| | | |
|--------------------|--|---|
| Description | Erase all disks in system (not present in production system) | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x1a |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_size (o) | Use this to limit the disk size to a specific number of bytes. If this parameter is 0xffffffffffffff or is omitted the full disk is used. This parameter is applied to all disks in the system. |
| payload | none | |



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4.11.2 CMD_ERASEALL Reply (COLDSTORE to client)

| | | |
|-------------------|------------------------|--------------------|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x1a |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | status | See section 3.2.3 |
| payload | none | |



COLDSTORE Network Protocol

4.12 CMD_FILE_QUERY

4.12.1 CMD_FILE_QUERY Command (client to COLDSTORE)

| | | | |
|--------------------|---|--|---|
| Description | Execute a query on the COLDSTORE internal database. | | |
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x1d | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | file_name (o) | The file name to match (can contain wildcards). | |
| | file_count (o) | Limit the maximum number of rows in the result. If this parameter is absent, there is no limit. | |
| | time_start (o) | Include only files which cover this time. Use UTC only, tz_offset should be 0. | |
| | channel (o) | The channel number to match. | |
| | string_start (o) | Together these 2 parameters define a substring of the filename which is returned | |
| | string_length (o) | | |
| | file_query_flags | Bit | Description |
| | | 0 | DISTINCT - no duplicate results. |
| | | 1 | FILENAME_USE_WILDCARDS - % matches any string, _ matches any character. |
| | | 2 | ORDER_DESCENDING - results are in descending. order of file creation time (default is ascending). |
| 4 | | RETURN_CHANNEL - return the channel number in the result set. | |
| 5 | | RETURN_FILENAME - return the file name in the result set. If string_start and string_length are present then a substring of the file name is returned. | |
| 6 | | RETURN_FIRST_MS - return the UTC timestamp of the first chunk of the file in the result set. | |



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| | | |
|----------------|---------------------|-------------------------------------|
| | <i>disk_slot(o)</i> | The disk slot to match, zero based. |
| payload | none | |

4.12.2 CMD_FILE_QUERY Reply (COLDSTORE to client)

| | | |
|-------------------|-------------------------------|---|
| header | <i>version</i> | 0x03 |
| | <i>header_size</i> | 0x10 |
| | <i>command</i> | 0x1d |
| | <i>parameter_count</i> | 0x02 |
| | <i>payload_offset</i> | 0x0028 |
| | <i>spare</i> | 0x0000 |
| | <i>payload_length</i> | The number of bytes returned (never more than 1MiB). |
| parameters | <i>file_count</i> | The number of rows in the result set |
| | <i>status</i> | See section 3.2.3 |
| payload | <i>result_set</i> | The result of the query, stored as a sequence of null terminated strings. |



COLDSTORE Network Protocol

4.13 CMD_GET_TIMESPANS

4.13.1 CMD_GET_TIMESPANS Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Retrieve the set of timespans for which files exist. This can be filtered by file name, channel number and a time range. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x20 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_name (o) | The file name to match. |
| | time_start (o) | Include only files which end after this time. Use UTC only, tz_offset should be 0. |
| | time_end (o) | Include only files which start before this time. Use UTC only, tz_offset should be 0. |
| | time_current (o) | Query resolution (if this is present then time_start must be present). Query results are rounded to an integer multiple offset from time_start . |
| | channel (o) | The channel number to match. |
| payload | none | |



COLDSTORE Network Protocol

4.13.2 CMD_GET_TIMESPANS Reply (COLDSTORE to client)

| | | |
|-------------------|------------------------|--|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x20 |
| | parameter_count | 0x02 |
| | payload_offset | 0x0028 |
| | spare | 0x0000 |
| | payload_length | The number of bytes returned (never more than 1MiB). |
| parameters | file_count | The number of timestamp pairs in the result set. |
| | status | See section 3.2.3 |
| payload | result_set | The result of the query, stored as a set of timestamp pairs. Each pair represents a timespan, with the first timestamp being the start and the second timestamp being the end. The total payload size is $16 * \mathbf{file_count}$ |



COLDSTORE Network Protocol

4.14 CMD_CREATE_EX

4.14.1 CMD_CREATE_EX Command (client to COLDSTORE)

| | | |
|--------------------|--|---|
| Description | Create a new file for writing to. This command performs a similar function to CMD_CREATE with additional checks for where the file is going to be created. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x1f |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | file_name | The name of the file. |
| | channel | The channel number to associate with this file, e.g. camera number. |
| | disk_slot(o) | The disk slot(s) for where the file is expected to be created. If any of the provided slots are not current writing disks then an error will be returned. |
| payload | none | |



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4.14.2 CMD_CREATE_EX Reply (COLDSTORE to client)

| | | |
|-------------------|-------------------------|--|
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x1f |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | time_current (o) | The file creation time generated by COLDSTORE. Only present if the create succeeded. |
| | stream_no | 0xffffffff if fail, otherwise the stream_no for this file. This stream_no cannot be used in the CMD_READ, CMD_SEEK or CMD_TELL commands. |
| | status | See section 3.2.3 |
| | disk_slot(o) | The disk slot that the file was created on. Note: depending on the array configuration (JBOD, mirrored-overlapping pair, etc.), there may be more than one disk_slot parameter returned. Only present if the create succeeded. |
| payload | none | |



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4.15 CMD_GET_HYBRID_CONFIG

4.15.1 CMD_GET_HYBRID_CONFIG Command (client to COLDSTORE)

| | | |
|--------------------|--|--------------------|
| Description | Retrieve the currently configured hybrid configuration settings. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x40 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | none | |
| payload | none | |



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4.15.2 CMD_GET_HYBRID_CONFIG Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|--|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x40 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | Variable | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | host_id(u32) | The SATA Host ID of the device to use as the General Area. | |
| | filters | List of Null terminated strings representing regular expressions used to match path-names to store on the SFS Area. The list is terminated by an empty string. | |



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4.16 CMD_SET_HYBRID_CONFIG

4.16.1 CMD_SET_HYBRID_CONFIG Command (client to COLDSTORE)

| | | |
|--------------------|---|--|
| Description | Configured the hybrid configuration settings. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x41 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | host_id(u32) | The SATA Host ID of the device to use as the General Area, must be 0x000f. |
| | filters | List of Null terminated strings representing regular expressions used to match path-names to store on the SFS Area. The list is terminated by an empty string. |



COLDSTORE Network Protocol

4.16.2 CMD_SET_HYBRID_CONFIG Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x41 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.17 CMD_GETATTR_PATH

4.17.1 CMD_GETATTR_PATH Command (client to COLDSTORE)

| | | |
|--------------------|---|---|
| Description | Get directory/file attributes, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x50 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.17.2 CMD_GETATTR_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---|-----------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x50 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | path_type(o) | 0 - UNKNOWN, 1 - FILE, 2 - DIRECTORY | |
| | channel(o) | The channel number of the file or directory. Undefined for paths of Unknown type. | |
| | start_time(o) | The time of the first chunk of the file. Undefined for paths of Unknown type. | |
| | end_time(o) | The time of the last chunk of the file. Undefined for paths of Unknown type. | |
| | file_size(o) | If the path is of type file, then this parameter represents the size of the file in bytes. If the path is a directory then 2 is always returned. Undefined for paths of Unknown type. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | SUCCESS | The operation was successful. | |
| payload | None | | |



COLDSTORE Network Protocol

4.18 CMD_READDIR_PATH

4.18.1 CMD_READDIR_PATH Command (client to COLDSTORE)

| | | |
|--------------------|---|---|
| Description | Read directory contents, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x51 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.18.2 CMD_READDIR_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|--|-----------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x51 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | Variable | |
| parameters | file_count(o) | The number of file/directory names returned in the payload. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | SUCCESS | The operation was successful. | |
| payload | names | The contents of the directory, stored as a sequence of null terminated strings, each string representing a file or directory name. | |



COLDSTORE Network Protocol

4.19 CMD_MKDIR_PATH

4.19.1 CMD_MKDIR_PATH Command (client to COLDSTORE)

| | | |
|--------------------|--------------------------------------|---|
| Description | Create a directory, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x52 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.19.2 CMD_MKDIR_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x52 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FILE_EXISTS | The path already exists. |
| | | FILE_NOT_FOUND | The parent directory was not found. |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.20 CMD_RMDIR_PATH

4.20.1 CMD_RMDIR_PATH Command (client to COLDSTORE)

| | | |
|--------------------|--------------------------------------|---|
| Description | Delete a directory, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x53 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.20.2 CMD_RMDIR_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x53 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | NOT_A_DIRECTORY | Could not find the directory. |
| | | DIRECTORY_NOT_EMPTY | The directory was not empty. |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.21 CMD_UNLINK_PATH

4.21.1 CMD_UNLINK_PATH Command (client to COLDSTORE)

| | | |
|--------------------|---------------------------------|---|
| Description | Delete a file, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x54 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.21.2 CMD_UNLINK_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x54 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FILE_NOT_FOUND | The file was not found. |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.22 CMD_CREATE_PATH

4.22.1 CMD_CREATE_PATH Command (client to COLDSTORE)

| | | |
|--------------------|---------------------------------|---|
| Description | Create a file, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x55 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | time_current (o) | The file creation time generated by the client. |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.22.2 CMD_CREATE_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|-------------------------------|---|----------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x55 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | stream_no(o) | The stream_no for this file if successful; otherwise not present. This stream_no cannot be used in the CMD_READ, CMD_SEEK or CMD_TELL commands. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FILE_NOT_FOUND | File or directory not found. |
| | | NO_SPARE_STREAMS | No free write streams available. |
| | | FAIL | The operation failed. |
| SUCCESS | The operation was successful. | | |
| payload | none | | |



COLDSTORE Network Protocol

4.23 CMD_OPEN_PATH

4.23.1 CMD_OPEN_PATH Command (client to COLDSTORE)

| | | |
|--------------------|-------------------------------|---|
| Description | Open a file, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x56 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | path | Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.23.2 CMD_OPEN_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|-------------------------------|---|------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x56 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | stream_no(o) | The stream_no for this file if successful; otherwise not present. This stream_no cannot be used in a CMD_WRITE command. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FILE_NOT_FOUND | File or directory not found. |
| | | NO_SPARE_STREAMS | No free streams available. |
| | | DISK_POWERING_UP | Disk powering up. |
| | | FAIL | The operation failed. |
| SUCCESS | The operation was successful. | | |
| payload | none | | |



COLDSTORE Network Protocol

4.24 CMD_RENAME_PATH

4.24.1 CMD_RENAME_PATH Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Rename a file or directory, based on a path. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x57 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | from | File/directory to rename. Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |
| | to | New name for the file/directory. Null terminated string representing a file-system path. Maximum size of 4096 characters including the terminating character. e.g. "some/path/name". |



COLDSTORE Network Protocol

4.24.2 CMD_RENAME_PATH Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|---------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x57 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FILE_NOT_FOUND | Could not find the 'from' path. |
| | | FILE_EXISTS | The 'to' path already exists. |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.25 CMD_GETATTR

4.25.1 CMD_GETATTR Command (client to COLDSTORE)

| | | |
|--------------------|---|---------------------------------|
| Description | Get the attributes of a file, based on channel and file-name. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x60 |
| | parameter_count | 0x02 |
| | payload_offset | 0x60 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | channel | The channel number of the file. |
| | file_name | The file-name, null terminated. |
| payload | none | |



COLDSTORE Network Protocol

4.25.2 CMD_GETATTR Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x60 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | start_time(o) | The time of the first chunk of the file. | |
| | end_time(o) | The time of the last chunk of the file. | |
| | file_size(o) | The size of the file in bytes. | |
| | disk_slot(o) | The disk slot that contains the disk drive that the file was written on (zero based). | |
| | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| payload | none | SUCCESS | The operation was successful. |



COLDSTORE Network Protocol

4.26 CMD_DISKSTEP

4.26.1 CMD_DISKSTEP Command (client to COLDSTORE)

| | | |
|--------------------|---|--------------------|
| Description | Force the Coldstore to perform a disk-step. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x61 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | none | |
| payload | none | |



COLDSTORE Network Protocol

4.26.2 CMD_DISKSTEP Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x61 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.27 CMD_DISKINFO

4.27.1 CMD_DISKINFO Command (client to COLDSTORE)

| | | |
|--------------------|---|---|
| Description | Return disk drive information from a disk slot. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x62 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The disk slot that contains the disk drive to query (zero based). |
| payload | none | |



COLDSTORE Network Protocol

4.27.2 CMD_DISKINFO Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-----------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x62 | |
| | parameter_count | Variable | |
| | payload_offset | Variable | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | disk_size(o) | The size of the disk drive in bytes. | |
| | disk_used(o) | The amount of disk used in bytes. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | SUCCESS | The operation was successful. | |
| payload | none | | |



COLDSTORE Network Protocol

4.28 CMD_REMOVE_DRIVE

4.28.1 CMD_REMOVE_DRIVE Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Remove the specified drive from the array. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x63 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The bay containing the drive to be remove, zero based. |
| payload | none | |



COLDSTORE Network Protocol

4.28.2 CMD_REMOVE_DRIVE Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x63 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.29 CMD_INSERT_DRIVE

4.29.1 CMD_INSERT_DRIVE Command (client to COLDSTORE)

| | | |
|--------------------|---|--|
| Description | Insert the specified drive into the array, opposite of CMD_REMOVE_DRIVE . | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x64 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The bay containing the drive to be inserted, zero based. |
| payload | none | |



COLDSTORE Network Protocol

4.29.2 CMD_INSERT_DRIVE Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x64 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.30 CMD_DRIVE_ON

4.30.1 CMD_DRIVE_ON Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Cause one or more drives to initiate spin-up. Drives are automatically spun-down after 30 minutes of inactivity. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x65 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot(o) | The bay(s) containing the drive(s) to spin-up. If no disk slots are provided then the whole array will be spun-up. |
| payload | none | |



COLDSTORE Network Protocol

4.30.2 CMD_DRIVE_ON Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x65 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.31 CMD_ARRAY_STATUS(Deprecated)

4.31.1 CMD_ARRAY_STATUS Command (client to COLDSTORE)

| | | |
|--------------------|---|--------------------|
| Description | Return status information from the COLDSTORE. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x66 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | none | |
| payload | none | |



COLDSTORE Network Protocol

4.31.2 CMD_ARRAY_STATUS Reply (COLDSTORE to client)

| | | | |
|-------------------|--------------------------------|---------------------------------------|--|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x66 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000023 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | number_of_writing_disks | u8 | The number of writing disks currently configured. JBOD = 1, Mirrored-overlapping pair = 2, Full Mirrored-pair = 2, etc. |
| | step_size | u8 | The amount of bays to step over when the writing drives become full. JBOD = 1, Mirrored-overlapping pair = 1, Full mirrored pair = 2, etc. |
| | number_of_bays | u8 | The number of drive bays on the system. The original COLDSTORE has 15 (0x0f) bays. |
| | sb_count | u64 | The total number of storage blocks in the array. |
| | sb_used | u64 | The number of storage blocks currently used in the array. |
| | timestamp_first | u64 | Timestamp indicating the oldest file on the array (see section 3.2.2). |
| | timestamp_last | u64 | Timestamp indicating the youngest file on the array (see section 3.2.2). |



COLDSTORE Network Protocol

4.32 CMD_BAY_STATUS

4.32.1 CMD_BAY_STATUS Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Return the status information of specified drive bays. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x67 |
| | parameter_count | Variable |
| | payload_offset | Variable |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot(o) | Zero or more disk_slots , zero based. Each disk_slot represents a drive bay to retrieve the status of. If no disk_slot is specified then the status of all bays will be returned. |
| payload | none | |



COLDSTORE Network Protocol

4.32.2 CMD_BAY_STATUS Reply (COLDSTORE to client)

| | | | | | | |
|-------------------|------------------------|---------------------------------------|--|---|---------|----------------------------------|
| header | version | 0x03 | | | | |
| | header_size | 0x10 | | | | |
| | command | 0x67 | | | | |
| | parameter_count | 0x01 | | | | |
| | payload_offset | 0x0020 | | | | |
| | spare | 0x0000 | | | | |
| | payload_length | Variable | | | | |
| parameters | status | See section 3.2.3 , expected values:- | | | | |
| | | FAIL | The operation failed. | | | |
| | | SUCCESS | The operation was successful. | | | |
| payload | number_of_bays | u8 | The number of bay status reports returned. | | | |
| | bay_status | Zero or more bay status results. | | | | |
| | | disk_slot | u32 | The bay this report relates to, zero based. | | |
| | | physical | u8 | The physical state of the slot/drive, valid states :- | | |
| | | | | 0x00 | Unknown | Unknown status. |
| | | | | 0x01 | Empty | The bay is empty. |
| | | | | 0x02 | Off | The drive is not powered. |
| | | | | 0x03 | On | The drive is powered. |
| | | | | 0x04 | Faulty | The bay contains a faulty drive. |
| | | action | u8 | The current action, valid states are as follows :- | | |
| 0x00 | Unknown | | | The bay is empty. | | |
| 0x01 | Idle | | | The drive is spun-up, a reading disk. | | |



COLDSTORE Network Protocol

| | | | | | | |
|--|--|--------------------------|---|--|--------------|---|
| | | | | 0x02 | Recording | The drive is currently being written to. |
| | | | | 0x03 | Initializing | The drive is being initialized. |
| | | | | 0x04 | Inserting | The drive is being inserted into the array. |
| | | | | 0x05 | Removing | The drive is being removed from the array. |
| | | | | 0x06 | Erasing | The drive is being erased. |
| | | disk_sb_count | u64 | If the bay is not empty, then the disk drive capacity in storage blocks (64Kbyte chunks), otherwise 0. | | |
| | | last_sb_used | u64 | If the bay is not empty, then the number of storage blocks already consumed, otherwise 0. | | |
| | | timestamp_first | u64 | If the bay is not empty, then a Timestamp indicating the oldest file on the drive (see section 3.2.2), otherwise 0. | | |
| | | timestamp_last | u64 | If the bay is not empty, then a Timestamp indicating the youngest file on the drive (see section 3.2.2), otherwise 0. | | |
| | | model | ATA drive model, 40 ASCII characters (may not be null-terminated). | | | |
| | | firmware_revision | ATA firmware revision, 8 ASCII characters (may not be null-terminated). | | | |
| | | serial_number | ATA serial number, 20 ASCII characters (may not be null-terminated). | | | |



COLDSTORE Network Protocol

4.33 CMD_ERASE_DRIVE

4.33.1 CMD_ERASE_DRIVE Command (client to COLDSTORE)

| | | |
|--------------------|----------------------------|---|
| Description | Erase the specified drive. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x68 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The drive bay containing the drive to erase (zero based). |
| payload | none | |



COLDSTORE Network Protocol

4.33.2 CMD_ERASE_DRIVE Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x68 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.34 CMD_QUERY_SELECT

4.34.1 CMD_QUERY_SELECT Command (client to COLDSTORE)

| | | | |
|--------------------|---|---------------------|--|
| Description | Retrieve the data from a previously prepared query. | | |
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x6a | |
| | parameter_count | 0x00 | |
| | payload_offset | 0x0010 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000c | |
| parameters | none | | |
| payload | token | u32 | The token returned from a previous query prepare command. |
| | rowid | u64 | Rows numbered after the supplied rowid will be returned. The first entry of the query results has a rowid of 1, so supplying a rowid of 0 will return the data from the start of the results. |



COLDSTORE Network Protocol

4.34.2 CMD_QUERY_SELECT Reply (COLDSTORE to client)

| | | | | |
|-------------------|--------------------------|---|---|---|
| header | version | 0x03 | | |
| | header_size | 0x10 | | |
| | command | 0x6a | | |
| | parameter_count | 0x01 | | |
| | payload_offset | 0x0020 | | |
| | spare | 0x0000 | | |
| | payload_length | Variable. | | |
| parameters | status | See section 3.2.3 , expected values:- | | |
| | | FAIL | The operation failed. | |
| | | SUCCESS | The operation was successful. | |
| payload | token | u32 | The token corresponding to the query prepare command, should match the token provided by the CMD_QUERY_SELECT command. | |
| | number_of_records | u64 | The number of records returned in this reply. The number of records returned in any single reply is limited by the payload size which is a maximum of 1MByte. | |
| | records | Each records represents a file stored on the COLDSTORE. | | |
| | | id | u64 | Database ID of the record. |
| | | disk_slot | u32 | The drive bay of the disk which contains the file, zero based. |
| | | channel | u32 | Channel number used when the file was created. |
| | | tz_offset | s16 | Timezone portion of a Timestamp (see section 3.2.2). Valid when the file was created. |
| | | first_ms | u64 | Millisecond (ms) portion of a Timestamp (see section 3.2.2). Time of file creation. |
| | | last_ms | u64 | Millisecond (ms) portion of a Timestamp (see section 3.2.2). Last time the file was recorded to. |
| filename | 64 bytes | The file's name, null-terminated. | | |



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| | | | | |
|--|--|-----------------|-----|---------------------------------------|
| | | filesize | u64 | Size of the file in bytes. |
| | | first_sb | u32 | First storage block used by the file. |
| | | last_sb | u32 | Last storage block used by the file. |



COLDSTORE Network Protocol

4.35 CMD_QUERY_FINALIZE

4.35.1 CMD_QUERY_FINALIZE Command (client to COLDSTORE)

| | | | |
|--------------------|--|--------------------|---|
| Description | Finalize the query associated with the supplied token. Queries can consume significant resources on the COLDSTORE, query results are automatically freed after one minute of inactivity, however this command can be used to free resources immediately. | | |
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x6b | |
| | parameter_count | 0x00 | |
| | payload_offset | 0x0010 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000004 | |
| parameters | none | | |
| payload | token | u32 | The token associated with a previous query prepare command. |



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4.35.2 CMD_QUERY_FINALIZE Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x6b | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.36 CMD_QUERY_PREPARE_GENERAL

4.36.1 CMD_QUERY_PREPARE_GENERAL Command (client to COLDSTORE)

| | | | | | | | | | | | | | | | | | | |
|--------------------|--|--|--|---|------------------|---|---|----------------|---|---|-----------------|--|---|-------------------|--|---|--------------------------|--|
| Description | <p>Prepare a file query, similar to CMD_FILE_QUERY, however results are returned in a binary format and can exceed the 1 MB payload limitation by using multiple CMD_QUERY_SELECT commands to index the results.</p> <p>This command generates a token that is used by the CMD_QUERY_SELECT and CMD_QUERY_FINALIZE commands. CMD_QUERY_SELECT is used to retrieve the results, CMD_QUERY_FINALIZE releases the token and it's resources.</p> <p>Tokens and associated resources are automatically released after one minute of inactivity.</p> | | | | | | | | | | | | | | | | | |
| header | version | 0x03 | | | | | | | | | | | | | | | | |
| | header_size | 0x10 | | | | | | | | | | | | | | | | |
| | command | 0x6c | | | | | | | | | | | | | | | | |
| | parameter_count | 0x00 | | | | | | | | | | | | | | | | |
| | payload_offset | 0x0010 | | | | | | | | | | | | | | | | |
| | spare | 0x0000 | | | | | | | | | | | | | | | | |
| | payload_length | 0x000000000000012c | | | | | | | | | | | | | | | | |
| parameters | none | | | | | | | | | | | | | | | | | |
| payload | use_flags | u32 | <p>Bit-field controlling and modifying which parameters to search by. Valid values are as follows :-</p> <table border="1" data-bbox="778 1541 1441 1984"> <tr> <td data-bbox="778 1541 820 1621">1</td> <td data-bbox="820 1541 1002 1621">Disk slot</td> <td data-bbox="1002 1541 1441 1621">The supplied disk_slot will be used.</td> </tr> <tr> <td data-bbox="778 1621 820 1702">2</td> <td data-bbox="820 1621 1002 1702">Channel</td> <td data-bbox="1002 1621 1441 1702">The supplied channel will be used.</td> </tr> <tr> <td data-bbox="778 1702 820 1783">3</td> <td data-bbox="820 1702 1002 1783">Filename</td> <td data-bbox="1002 1702 1441 1783">The supplied filename will be used.</td> </tr> <tr> <td data-bbox="778 1783 820 1863">4</td> <td data-bbox="820 1783 1002 1863">Start time</td> <td data-bbox="1002 1783 1441 1863">The supplied start_time will be used.</td> </tr> <tr> <td data-bbox="778 1863 820 1984">5</td> <td data-bbox="820 1863 1002 1984">Filename wildcard</td> <td data-bbox="1002 1863 1441 1984">When set, the filename will be treated as a wild-card, otherwise it will be matched</td> </tr> </table> | 1 | Disk slot | The supplied disk_slot will be used. | 2 | Channel | The supplied channel will be used. | 3 | Filename | The supplied filename will be used. | 4 | Start time | The supplied start_time will be used. | 5 | Filename wildcard | When set, the filename will be treated as a wild-card, otherwise it will be matched |
| 1 | Disk slot | The supplied disk_slot will be used. | | | | | | | | | | | | | | | | |
| 2 | Channel | The supplied channel will be used. | | | | | | | | | | | | | | | | |
| 3 | Filename | The supplied filename will be used. | | | | | | | | | | | | | | | | |
| 4 | Start time | The supplied start_time will be used. | | | | | | | | | | | | | | | | |
| 5 | Filename wildcard | When set, the filename will be treated as a wild-card, otherwise it will be matched | | | | | | | | | | | | | | | | |



COLDSTORE Network Protocol

| | | | | |
|--|-----------------------|-----|--|---|
| | | | | literally. |
| | | | 6 | Backward time search When set, times before start_time will be matched, otherwise times on or after start_time will be matched. |
| | group_by_flags | u32 | Bit-field controlling how the results are grouped. Valid values are :- | |
| | | | 1 | Disk slot Group by disk_slot. |
| | | | 2 | Channel Group by channel. |
| | | | 3 | Filename Group by filename. |
| | | | 4 | Start time Group by first_ms. |
| | | | Note: Grouping is an expensive operation and may cause disruption to recording, consider doing the operation locally instead. | |
| | order_by_flags | u32 | Bit-field controlling the result ordering. Valid values are :- | |
| | | | 1 | Disk slot, ascending |
| | | | 2 | Disk slot, descending |
| | | | 3 | Channel, ascending |
| | | | 4 | Channel, descending |
| | | | 5 | Filename, ascending |
| | | | 6 | Filename, descending |
| | | | 7 | Start time, ascending |
| | | | 8 | Start time, descending |
| | | | Note: Ordering is an expensive operation and may cause disruption to recording, consider doing the operation locally instead. | |
| | limit | u64 | Limit the number of results returned. 0 - unlimited. | |
| | channel | u32 | Channel number used when a file is created. If the Channel use_flag is set, then this parameter will be used to match against each file's channel, otherwise it will be ignored. | |



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| | | | |
|--|----------------------|-----------|--|
| | start_time | u64 | <p>Millisecond (ms) portion of a Timestamp (see section 3.2.2).</p> <p>If the Start time use_flag is set, then this parameter will be used to compare against each file's last_ms, otherwise it will be ignored.</p> <p>If the Backward time search use_flag is set then the comparison will "last_ms<start_time", otherwise "last_ms>=start_time".</p> |
| | disk_slot | u32 | <p>Drive bay that contains the disk on which the file resides, zero based.</p> <p>If the Disk slot use_flag is set, then this parameter will be matched against each file's disk_slot, otherwise it will be ignored.</p> |
| | string_start | u32 | <p>Together these two parameters define a sub-string that is applied to the file-names of the results before they are returned. If either parameter is 0, then they will be ignored.</p> |
| | string_length | u32 | |
| | file_name | 256 bytes | <p>A null-terminated C-style string.</p> <p>If the Filename use_flag is set, then this parameter will be matched against each file's name, otherwise it will be ignored.</p> <p>If the Filename wildcard use_flag is set, then it will be treated as an SQL format wild-card.</p> |



COLDSTORE Network Protocol

4.36.2 CMD_QUERY_PREPARE_GENERAL Reply (COLDSTORE to client)

| | | | |
|-------------------|--------------------------------|---------------------------------------|--|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x6c | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000c | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | token | u32 | Token generated when preparing the query results, used to refer to the results by commands CMD_QUERY_SELECT and CMD_QUERY_FINALIZE . |
| | total_number_of_records | u64 | Total number of records available for retrieval by the CMD_QUERY_SELECT command. |



COLDSTORE Network Protocol

4.37 CMD_QUERY_PREPARE_DISK_SLOT

4.37.1 CMD_QUERY_PREPARE_DISK_SLOT Command (client to COLDSTORE)

| | | | |
|--------------------|--|--------------------|---|
| Description | Prepare a query to return the file information contained by the disk in the specified drive bay. This is the most efficient method of retrieving all the file information from a disk. | | |
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x6d | |
| | parameter_count | 0x00 | |
| | payload_offset | 0x0010 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000004 | |
| parameters | none | | |
| payload | disk_slot | u32 | Drive bay that contains the disk to query for file information, zero based. |



COLDSTORE Network Protocol

4.37.2 CMD_QUERY_PREPARE_DISK_SLOT Reply (COLDSTORE to client)

| | | | |
|-------------------|--------------------------------|---------------------------------------|--|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x6d | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x20 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000c | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | token | u32 | Token generated when preparing the query results, used to refer to the results by commands CMD_QUERY_SELECT and CMD_QUERY_FINALIZE . |
| | total_number_of_records | u64 | Total number of records available for retrieval by the CMD_QUERY_SELECT command. |



COLDSTORE Network Protocol

4.38 CMD_RETENTION_STATE

4.38.1 CMD_RETENTION_STATE Command (client to COLDSTORE)

| | | |
|--------------------|-------------------------------|--------------------|
| Description | Retrieve the retention state. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x21 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | none | |
| payload | none | |



COLDSTORE Network Protocol

4.38.2 CMD_RETENTION_STATE Reply (COLDSTORE to client)

| | | | |
|-----------------------------------|----------------------------|---------------------------------------|---|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x21 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x20 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000007 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | configured_interval | u32 | Retention target in milliseconds. |
| | configured_action | u8 | Action to take if the retention target is missed. |
| | | | 0x00 Disabled, retention target is not being tracked. |
| | | | 0x01 Stop recording and report. |
| | | | 0x02 Report only. |
| | target_missed | u8 | 0x00 Retention target is being met. |
| | | | 0x01 Retention target is not being met. |
| | recording_paused | u8 | 0x00 Recording is not paused. |
| 0x01 Recording has been paused. | | | |



COLDSTORE Network Protocol

4.39 CMD_GET_CONFIG

4.39.1 CMD_GET_CONFIG Command (client to COLDSTORE)

| | | |
|--------------------|---|--|
| Description | Read configuration items. These values are not necessarily active, for the active values see CMD_GET_ACTIVE . These values will become active after issuing the command CMD_UPDATE_CONFIG . | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x22 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | item_count | u32 The number of requested items. If no item keys are specified then all known key/values pairs are returned. |
| | requested_items | A sequence of null-terminated strings each specifying an item key to retrieve. |



COLDSTORE Network Protocol

4.39.2 CMD_GET_CONFIG Reply (COLDSTORE to client)

| | | | |
|-------------------|-------------------------|--|--|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x22 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x20 | |
| | spare | 0x0000 | |
| | payload_length | Variable | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | item_count | u32 | The number of item key/value pairs returned. |
| | item_value_pairs | A sequence of null-terminated string pairs each specifying an item key/value pair. | |



COLDSTORE Network Protocol

4.40 CMD_SET_CONFIG

4.40.1 CMD_SET_CONFIG Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Set configuration items. Items can be read by the command CMD_GET_CONFIG , and become active after sending the command CMD_UPDATE_CONFIG . | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x23 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | Variable |
| parameters | none | |
| payload | item_count | u32 The number of items in the payload. |
| | item_value_pairs | A sequence of null-terminated string pairs each specifying an item key/value pair. |



COLDSTORE Network Protocol

4.40.2 CMD_SET_CONFIG Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x23 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x20 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.41 CMD_GET_ACTIVE

4.41.1 CMD_GET_ACTIVE Command (client to COLDSTORE)

| | | | |
|--------------------|--|--|--|
| Description | Read currently active configuration items. | | |
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x24 | |
| | parameter_count | 0x00 | |
| | payload_offset | 0x0010 | |
| | spare | 0x0000 | |
| | payload_length | Variable | |
| parameters | none | | |
| payload | item_count | u32 | The number of requested items. If no item keys are specified then all known key/values pairs are returned. |
| | requested_item_keys | A sequence of null-terminated strings each specifying an item key to retrieve. | |



COLDSTORE Network Protocol

4.41.2 CMD_GET_ACTIVE Reply (COLDSTORE to client)

| | | | |
|-------------------|-------------------------|--|--|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x24 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x20 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000c | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | item_count | u32 | The number of item key/value pairs returned. |
| | item_value_pairs | A sequence of null-terminated string pairs each specifying an item key/value pair. | |



COLDSTORE Network Protocol

4.42 CMD_UPDATE_CONFIG

4.42.1 CMD_UPDATE_CONFIG Command (client to COLDSTORE)

| | | |
|--------------------|--|--------------------|
| Description | Activate configuration items. Items are set by the command CMD_SET_CONFIG , and become active by executing this command. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x25 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000004 |
| parameters | none | |
| payload | none | |



COLDSTORE Network Protocol

4.42.2 CMD_UPDATE_CONFIG Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x25 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x20 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000c | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.43 CMD_DISK_READ_ONLY

4.43.1 CMD_DISK_READ_ONLY Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Mark the specified drive in the array as read only, opposite of CMD_DISK_WRITEABLE . | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x27 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The bay containing the drive to be marked read only, zero based. |
| payload | none | |



COLDSTORE Network Protocol

4.43.2 CMD_DISK_READ_ONLY Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x27 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.44 CMD_DISK_WRITEABLE

4.44.1 CMD_DISK_WRITEABLE Command (client to COLDSTORE)

| | | |
|--------------------|--|--|
| Description | Mark the specified drive in the array as writeable, opposite of CMD_DISK_READ_ONLY . | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x28 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The bay containing the drive to be marked writeable, zero based. |
| payload | none | |



COLDSTORE Network Protocol

4.44.2 CMD_DISK_WRITEABLE Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---------------------------------------|-------------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x28 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000000 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | none | | |



COLDSTORE Network Protocol

4.45 CMD_SHORT_TEST_SMARTMONTTOOLS_DATA

4.45.1 CMD_SHORT_TEST_SMARTMONTTOOLS_DATA Command (client to COLDSTORE)

| | | |
|--------------------|--|---|
| Description | Retrieve the short smartmontools selftest results for the selected disk. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x29 |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The bay containing the drive to retrieve the results, zero based. |
| payload | none | |



COLDSTORE Network Protocol

4.45.2 CMD_SHORT_TEST_SMARTMONTTOOLS_DATA Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|--|--------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x29 | |
| | parameter_count | Variable. | |
| | payload_offset | Variable. | |
| | spare | 0x0000 | |
| | payload_length | Variable. | |
| parameters | file_count(o) | The number of file/directory names returned in the payload. This param is only sent if the file has been found successfully. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FILE_NOT_FOUND | Could not find the file. |
| | | FAIL | The operation failed. |
| | SUCCESS | The operation was successful. | |
| payload | Result String | A null terminated string that contains the results of the short smartmontools analysis for the specified disk | |



COLDSTORE Network Protocol

4.46 CMD_FULL_TEST_SMARTMONTTOOLS_DATA

4.46.1 CMD_FULL_TEST_SMARTMONTTOOLS_DATA Command (client to COLDSTORE)

| | | |
|--------------------|--|---|
| Description | Retrieve the full smartmontools results for the selected disk. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x2A |
| | parameter_count | 0x01 |
| | payload_offset | 0x0020 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | disk_slot | The bay containing the drive to retrieve the results, zero based. |
| payload | none | |



COLDSTORE Network Protocol

4.46.2 CMD_FULL_TEST_SMARTMONTTOOLS_DATA Reply (COLDSTORE to client)

| | | | |
|-------------------|------------------------|---|--------------------------|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x2A | |
| | parameter_count | Variable. | |
| | payload_offset | Variable. | |
| | spare | 0x0000 | |
| | payload_length | Variable. | |
| parameters | file_count(o) | The number of files/directory names returned in the payload. This param is only sent if the file has been found successfully. | |
| | status | See section 3.2.3 , expected values:- | |
| | | FILE_NOT_FOUND | Could not find the file. |
| | | FAIL | The operation failed. |
| | SUCCESS | The operation was successful. | |
| payload | Result String | A null terminated string that contains the results of the full smartmontools analysis for the specified disk | |



COLDSTORE Network Protocol

4.47 CMD_ARRAY_STATUS_V2

4.47.1 CMD_ARRAY_STATUS_V2 Command (client to COLDSTORE)

| | | |
|--------------------|---|--------------------|
| Description | Return status information from the COLDSTORE. | |
| header | version | 0x03 |
| | header_size | 0x10 |
| | command | 0x69 |
| | parameter_count | 0x00 |
| | payload_offset | 0x0010 |
| | spare | 0x0000 |
| | payload_length | 0x0000000000000000 |
| parameters | none | |
| payload | none | |



COLDSTORE Network Protocol

4.47.2 CMD_ARRAY_STATUS_V2 Reply (COLDSTORE to client)

| | | | |
|-------------------|--------------------------------|---------------------------------------|--|
| header | version | 0x03 | |
| | header_size | 0x10 | |
| | command | 0x69 | |
| | parameter_count | 0x01 | |
| | payload_offset | 0x0020 | |
| | spare | 0x0000 | |
| | payload_length | 0x0000000000000026 | |
| parameters | status | See section 3.2.3 , expected values:- | |
| | | FAIL | The operation failed. |
| | | SUCCESS | The operation was successful. |
| payload | number_of_writing_disks | u8 | The number of writing disks currently configured. JBOD = 1, Mirrored-overlapping pair = 2, Full Mirrored-pair = 2, etc. |
| | step_size | u8 | The amount of bays to step over when the writing drives become full. JBOD = 1, Mirrored-overlapping pair = 1, Full mirrored pair = 2, etc. |
| | number_of_bays | u8 | The number of drive bays on the system. The original COLDSTORE has 15 (0x0f) bays. |
| | sb_count | u64 | The total number of storage blocks in the array. |
| | sb_used | u64 | The number of storage blocks currently used in the array. |
| | timestamp_first | u64 | Timestamp indicating the oldest file on the array (see section 3.2.2). |
| | timestamp_last | u64 | Timestamp indicating the youngest file on the array (see section 3.2.2). |
| | writing_speed | u16 | Returns the writing speed in Mbits/s |
| | status | u8 | Returns if COLDSTORE status is currently "UNKNOWN", "ACTIVE" or "IDLE". UNKNOWN = 0, IDLE = 1, ACTIVE = 2. |



COLDSTORE Network Protocol

5 Examples

5.1 Read 100 bytes from an open file (*stream_no* = 4)

| Section | Offset | Field | Value |
|------------------------|--------|-------------------------|--------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header_size | 0x10 |
| | 0x02 | command | 0x05 (CMD_READ) |
| | 0x03 | parameter_count | 0x02 |
| | 0x04 | payload_offset | 0x0028 |
| | 0x06 | spare | 0x0000 |
| | 0x08 | payload_length | 0x0000000000000000 |
| parameters.index | 0x10 | parameter_1 type | 0x0a (data_length) |
| | 0x11 | parameter_2 type | 0x0d (stream_no) |
| | 0x12 | padding | 0x00 |
| | 0x13 | padding | 0x00 |
| | 0x14 | padding | 0x00 |
| | 0x15 | padding | 0x00 |
| | 0x16 | padding | 0x00 |
| | 0x17 | padding | 0x00 |
| parameters.parameter_1 | 0x18 | data_length | 0x0000000000000064 |
| parameters.parameter_2 | 0x20 | stream_no | 0x00000004 |
| parameters.padding | 0x25 | padding | 0x00 |
| | 0x26 | padding | 0x00 |
| | 0x27 | padding | 0x00 |
| | 0x28 | padding | 0x00 |
| payload | 0x28 | none | |



COLDSTORE Network Protocol

5.2 Seek 160 bytes from the start of an open file (*stream_no* = 5)

| Section | Offset | Field | Value |
|------------------------|--------|-------------------------|--------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header_size | 0x10 |
| | 0x02 | command | 0x06 (CMD_SEEK) |
| | 0x03 | parameter_count | 0x03 |
| | 0x04 | payload_offset | 0x0028 |
| | 0x06 | spare | 0x0000 |
| | 0x08 | payload_length | 0x0000000000000000 |
| parameters.index | 0x10 | parameter_1 type | 0x05 (file_offset) |
| | 0x11 | parameter_2 type | 0x0d (stream_no) |
| | 0x12 | parameter_3 type | 0x0b (seek_whence) |
| | 0x13 | padding | 0x00 |
| | 0x14 | padding | 0x00 |
| | 0x15 | padding | 0x00 |
| | 0x16 | padding | 0x00 |
| | 0x17 | padding | 0x00 |
| parameters.parameter_1 | 0x18 | file_offset | 0x00000000000000a0 |
| parameters.parameter_2 | 0x20 | stream_no | 0x00000005 |
| parameters.parameter_3 | 0x24 | seek_whence | 0x00 |
| parameters.padding | 0x25 | padding | 0x00 |
| | 0x26 | padding | 0x00 |
| | 0x27 | padding | 0x00 |
| payload | 0x28 | none | |



COLDSTORE Network Protocol

5.3 Create a new file for writing to(file_name = test.dat, channel = 50)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|----------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x03(CMD_CREATE) |
| | 0x03 | parameter_count | 0x02 |
| | 0x04 | payload offset | 0x0060 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x02(file_name) |
| | 0x11 | <i>parameter_2 type</i> | 0x01(channel) |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>file_name</i> | 0x7465737442e6461740000000 |
| parameters.parameter_2 | 0x58 | <i>channel</i> | 0x00000050 |
| parameters.padding | 0x5C | <i>padding</i> | 0x00 |
| | 0x5D | <i>padding</i> | 0x00 |
| | 0x5E | <i>padding</i> | 0x00 |
| | 0x5F | <i>padding</i> | 0x00 |
| payload | 0x60 | <i>none</i> | |



COLDSTORE Network Protocol

5.4 Write a chunk of data to a file(stream_no = 5, data_tag = 100, file_data = 8 bytes)

| Section | Offset | Field | Value |
|------------------------|--------|-------------------------|---------------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x04(CMD_WRITE) |
| | 0x03 | parameter_count | 0x02 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000008(No of bytes) |
| parameters.index | 0x10 | parameter_1 type | 0x0d(stream_no) |
| | 0x11 | parameter_2 type | 0x09(data_tag) |
| | 0x12 | padding | 0x00 |
| | 0x13 | padding | 0x00 |
| | 0x14 | padding | 0x00 |
| | 0x15 | padding | 0x00 |
| | 0x16 | padding | 0x00 |
| | 0x17 | padding | 0x00 |
| parameters.parameter_1 | 0x18 | stream_no | 0x00000005 |
| parameters.parameter_2 | 0x1C | data_tag | 0x00000064 |
| payload | 0x20 | file_data | 0x4142434445464748 |



COLDSTORE Network Protocol

5.5 Close a File(stream_no = 5)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|--------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x07(CMD_CLOSE) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x0d(stream_no) |
| | 0x11 | <i>padding</i> | 0x00 |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>stream_no</i> | 0x00000005 |
| parameters.padding | 0x1C | <i>padding</i> | 0x00 |
| | 0x1D | <i>padding</i> | 0x00 |
| | 0x1E | <i>padding</i> | 0x00 |
| | 0x1F | <i>padding</i> | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.6 Mark Disk Read Only(disk_slot = 8)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|--------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x27(CMD_DISK_READ_ONLY) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x15(disk_slot) |
| | 0x11 | <i>padding</i> | 0x00 |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>disk_slot</i> | 0x00000008 |
| parameters.padding | 0x1C | <i>padding</i> | 0x00 |
| | 0x1D | <i>padding</i> | 0x00 |
| | 0x1E | <i>padding</i> | 0x00 |
| | 0x1F | <i>padding</i> | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.7 Mark Disk Write-able(disk_slot = 8)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|--------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x28(CMD_DISK_WRITEABLE) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x15(disk_slot) |
| | 0x11 | <i>padding</i> | 0x00 |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>disk_slot</i> | 0x00000008 |
| parameters.padding | 0x1C | <i>padding</i> | 0x00 |
| | 0x1D | <i>padding</i> | 0x00 |
| | 0x1E | <i>padding</i> | 0x00 |
| | 0x1F | <i>padding</i> | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.8 Retrieve short smartmontools data for disk(disk_slot = 6)

| Section | Offset | Field | Value |
|------------------------|--------|-------------------------|--|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x29(CMD_SHORT_TEST_SMARTMONTTOOLS_DATA) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | parameter_1 type | 0x15(disk_slot) |
| | 0x11 | padding | 0x00 |
| | 0x12 | padding | 0x00 |
| | 0x13 | padding | 0x00 |
| | 0x14 | padding | 0x00 |
| | 0x15 | padding | 0x00 |
| | 0x16 | padding | 0x00 |
| parameters.parameter_1 | 0x18 | disk_slot | 0x00000006 |
| parameters.padding | 0x1C | padding | 0x00 |
| | 0x1D | padding | 0x00 |
| | 0x1E | padding | 0x00 |
| | 0x1F | padding | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.9 Retrieve complete smartmontools data for disk(disk_slot = 6)

| Section | Offset | Field | Value |
|------------------------|--------|-------------------------|---|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x2A(CMD_FULL_TEST_SMARTMONTTOOLS_DATA) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | parameter_1 type | 0x15(disk_slot) |
| | 0x11 | padding | 0x00 |
| | 0x12 | padding | 0x00 |
| | 0x13 | padding | 0x00 |
| | 0x14 | padding | 0x00 |
| | 0x15 | padding | 0x00 |
| | 0x16 | padding | 0x00 |
| parameters.parameter_1 | 0x18 | disk_slot | 0x00000006 |
| parameters.padding | 0x1C | padding | 0x00 |
| | 0x1D | padding | 0x00 |
| | 0x1E | padding | 0x00 |
| | 0x1F | padding | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.10 Remove a disk from COLDSTORE(disk_slot = 7)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x63(CMD_REMOVE_DRIVE) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x15(disk_slot) |
| | 0x11 | <i>padding</i> | 0x00 |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>disk_slot</i> | 0x00000007 |
| parameters.padding | 0x1C | <i>padding</i> | 0x00 |
| | 0x1D | <i>padding</i> | 0x00 |
| | 0x1E | <i>padding</i> | 0x00 |
| | 0x1F | <i>padding</i> | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.11 Insert a disk into COLDSTORE(disk_slot = 7)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x64(CMD_INSERT_DRIVE) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x15(disk_slot) |
| | 0x11 | <i>padding</i> | 0x00 |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>disk_slot</i> | 0x00000007 |
| parameters.padding | 0x1C | <i>padding</i> | 0x00 |
| | 0x1D | <i>padding</i> | 0x00 |
| | 0x1E | <i>padding</i> | 0x00 |
| | 0x1F | <i>padding</i> | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.12 Retrieve COLDSTORE array information

| Section | Offset | Field | Value |
|---------|--------|------------------------|---------------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x69(CMD_ARRAY_STATUS_V2) |
| | 0x03 | parameter_count | 0x00 |
| | 0x04 | payload offset | 0x0010 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| payload | 0x10 | <i>none</i> | |



COLDSTORE Network Protocol

5.13 Retrieve bay status(parameter_count = 2, disk slot[s] = 1 & 2)

| Section | Offset | Field | Value |
|------------------------|--------|---------------------------------|----------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x67(CMD_BAY_STATUS) |
| | 0x03 | parameter_count | 0x02 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x15(disk_slot) |
| | 0x11 | <i>parameter_2 type</i> | 0x15(disk_slot) |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>disk_slot(first)</i> | 0x00000001 |
| parameters.parameter_2 | 0x1C | <i>disk_slot(second)</i> | 0x00000002 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.14 Erase a drive(disk_slot = 9)

| Section | Offset | Field | Value |
|------------------------|--------|--------------------------------|-----------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x68(CMD_ERASE_DRIVE) |
| | 0x03 | parameter_count | 0x01 |
| | 0x04 | payload offset | 0x0020 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| parameters.index | 0x10 | <i>parameter_1 type</i> | 0x15(disk_slot) |
| | 0x11 | <i>padding</i> | 0x00 |
| | 0x12 | <i>padding</i> | 0x00 |
| | 0x13 | <i>padding</i> | 0x00 |
| | 0x14 | <i>padding</i> | 0x00 |
| | 0x15 | <i>padding</i> | 0x00 |
| | 0x16 | <i>padding</i> | 0x00 |
| | 0x17 | <i>padding</i> | 0x00 |
| parameters.parameter_1 | 0x18 | <i>disk_slot</i> | 0x00000009 |
| parameters.padding | 0x1C | <i>padding</i> | 0x00 |
| | 0x1D | <i>padding</i> | 0x00 |
| | 0x1E | <i>padding</i> | 0x00 |
| | 0x1F | <i>padding</i> | 0x00 |
| payload | 0x20 | <i>none</i> | |



COLDSTORE Network Protocol

5.15 Force the COLDSTORE to perform a disk-step

| Section | Offset | Field | Value |
|---------|--------|------------------------|--------------------|
| header | 0x00 | version | 0x03 |
| | 0x01 | header size | 0x10 |
| | 0x02 | command | 0x61(CMD_DISKSTEP) |
| | 0x03 | parameter_count | 0x00 |
| | 0x04 | payload offset | 0x0010 |
| | 0x06 | spare | 0x000 |
| | 0x08 | payload length | 0x0000000000000000 |
| payload | 0x10 | <i>none</i> | |

